COURSE SYLLABUS: Spring 2018, MTH 1385 – Section 03 FOUNDATIONS OF MATHEMATICS FOR ELEMENTARY TEACHERS (II)

CLASSROOM AND SCHEDULE: Monday and Wednesday, 3:00 – 4:20 am, Room 431 LDB

INSTRUCTOR: Julie Albert

Office: Room 408, Lee Drain Building Phone: 294-4573 Email: jna003@shsu.edu Office Hours: Monday/Wednesday/Friday 9:00am – 10:50am (Room 408) Additional office hours are available by appointment.

COURSE GOAL:

This course is the second in a series of three courses designed to develop the necessary foundations in mathematics for prospective elementary teachers. Students are expected to practice communications skills by participating in classroom discussions including group work and to participate in hands-on activities, including the use of math manipulatives and technology. Topics will include National and Texas standards for teaching mathematics, the real number system, geometry, measurement, and the use of ratio and proportions. The four main themes recommended by the NCTM Principles and Standards (problem solving, reasoning, communication, and connections) will be emphasized throughout this course. Prerequisite: Math 1384 with a grade of C or better. 3 semester hours.

LEARNING OUTCOMES:

Upon completion of this course, students will be able to:

- Solve ratio and proportion problems
- Compare and contrast additive and multiplicative relationships
- Select and use appropriate units of measurement to quantify, compare, and communicate
- Develop, justify, and use conversions within measurement systems
- Describe the precision of measurement and the effects of error on measurement
- Apply the Pythagorean theorem and proportional reasoning, to solve measurement problems
- Demonstrate concepts, explore relationships, and define properties of geometric terms

- Utilize the development of formulas to find lengths, perimeters, areas, and volumes of basic geometric figures

- Analyze how changes in scale affect area and volume measurements

- Analyze and solve problems involving two- and three-dimensional figures such as circles, triangles, polygons, cylinders, and prisms using a variety of representations (e.g., numeric, verbal, graphic, symbolic)

- Demonstrate congruence and explore the symmetries of figures by using translations, reflections, glide-reflections, and rotations

- Illustrate similar figures and proportionality by using dilations (expansions and contractions)

- Describe tessellations and show how they can be used to illustrate geometric concepts, properties, and relationships by using symmetry

TEXT AND MATERIALS:

Reconceptualizing Mathematics for Elementary School Teachers. (Third Edition). Sowder, J., Sowder, L. and Nickerson, S. (2017). New York, NY: W.H. Freeman and Company.

Supplemental materials provided by the instructor

A scientific or graphing calculator is recommended for this course.

ATTENDANCE:

Regular and punctual attendance is expected of every student. As a prospective teacher, you must demonstrate your reliability and conscientious attitude by your faithful attendance. Students who miss more than two classes (three hours) during the semester will be assessed a point penalty (up to 50 points and reduction of one letter grade for severe attendance problems) toward their course grade. Attendance will be taken every class. If you are late to class, it is your responsibility to let me know immediately after the class. Any student who is more than 15 minutes late to class will be charged an absence. Tardies will count against your attendance record (3 tardies = 1 absence). Unless approved by the instructor, leaving class early will count as an absence. If absent or tardy, you are still responsible for all material covered in class, and you will need to check with a classmate or me about what was discussed. Serious health or family problems that are well documented will be handled individually. However, if you are unable to attend class regularly, you should drop the course.

In addition to attending class faithfully, students are expected to put forth their best effort in this class. This would include participating in class discussions, turning cell phones off during class, being attentive, staying the full length of the class, etc. Point penalties will be assessed for any problems in this area. Up to 50 points are designated for participation, attendance and professionalism in this course, and you must be "near perfect" to earn all of these points.

GRADING:

Grades for this course will be based on the total number of points earned, as listed below: A = 495 points or more B = 440 - 494 pts C = 385 - 439 pts D = 330 - 384 pts F = below 329 pts

Grades will be assigned for the following areas:

Three exams, weighted **100** points **each** Homework - **50** points Class participation, attendance, professionalism - **50** points Project and On-line discussion - **50** points Comprehensive final exam - **100** points

TESTS AND ASSIGNMENTS:

Tests will include problems that are based on the mathematical concepts taught during class. Most of the test is short answer with a small section that may include multiple choice or true/false. Unless approved by the instructor **prior** to the date of a test, there will be **no make-up** for a missed test. If a student misses a test and has a valid and approved reason, then the final exam will count double. A missed final examination can be made up only by approval of the Dean of the College of Arts and Sciences or a higher administrative official.

Homework assignments will sometimes be collected for a grade. Late homework and projects will not be accepted. There will be a series of 5 discussion topics in Blackboard. You must participate in all of the discussions in order to receive points. A small project will also need to be completed during the scheduled time. Zero points will be recorded for any assignment not turned in on or before the class date when it is due (even if you are absent that day or the day it was assigned).

STUDENT SYLLABUS GUIDELINES:

You may find online a more detailed description of the following policies. These guidelines will also provide you with a link to the specific university policy or procedure: <u>http://www.shsu.edu/syllabus/</u>

Academic Dishonesty: Students are expected to maintain honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. Academic dishonesty includes, but is not limited to, cheating on examinations or other work, plagiarism, collusion, and the abuse of resource materials. *See Student Syllabus Guidelines*.

Classroom Rules of Conduct: Students are expected to assist in maintaining a classroom environment that is conducive to learning. Students are to treat faculty and students with respect. Students may tape record lectures provided they do not disturb other students in the process.

Use of Telephones and Text Messagers in Academic Classrooms and Facilities: The use by students of electronic devices that perform the function of a telephone or text messager during class-time may be prohibited if deemed disruptive by the instructor to the conduct of the class. Arrangements for handling potential emergency situations may be granted at the discretion of the instructor. Failure to comply with the instructor's policy could result in expulsion from the classroom or with multiple offenses, failure of the course. Any use of a telephone or text messager or any device that performs these functions during a test period is prohibited. These devices should not be present during a test or should be stored securely in such a way that they cannot be seen or used by the student. Even the visible presence of such a device during the test period will result in a zero for that test. Use of these devices during a test is considered de facto evidence of cheating and could result in a charge of academic dishonesty (see student code of conduct http://www.shsu.edu/students/guide/StudentGuidelines2010-2012.pdf#page=29).

Student Absences on Religious Holy Days: Students are allowed to miss class and other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. Students remain responsible for all work. *See Student Syllabus Guidelines*.

STUDENTS WITH DISABILITIES POLICY:

It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should register with the Office of Services for Students with Disabilities located in the Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786, and e-mail <u>disability@shsu.edu</u>). They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired.

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Services for Students with Disabilities and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Services for Students with Disabilities. For a complete listing of the university policy, see:

http://www.shsu.edu/dotAsset/7ff819c3-39f3-491d-b688-db5a330ced92.pdf

Visitors in the Classroom: Only registered students may attend class. Exceptions can be made on a case-bycase basis by the professor. In all cases, visitors must not present a disruption to the class by their attendance. Students wishing to audit a class must apply to do so through the Registrar's Office.

Academic Success Center, located in Farrington Hall, is open Monday – Thursday 8am until 9pm, Friday 8:00am- 3:00pm and Sunday 2:00pm – 9:00pm. See website for more information: http://www.shsu.edu/centers/academic-success-center/.